☑002

CU-3292   PATENT

Amendments To The Specification

Please replace the paragraph [0010] in the Specification with the following amended paragraph [0010]:

[0010] Accordingly, the present invention has been made to solve the above-mentioned problems occurring in the prior art, and an object of the present invention is to provide a liquid crystal display (LCD) and method for driving the same, in which [[free-charge]] pre-charge data having a middle level between present input data and previous input data are generated to perform [[free-charging]] pre-charging of a liquid crystal driving unit with reference to a preset look-up table, and thereby a response speed of the liquid crystal can be improved and at the same time consumption of electric power can be saved.

Please replace the paragraph [0011] in the Specification with the following amended paragraph [0011]:

[0011] In order to accomplish this object, there is provided a liquid crystal display (LCD), comprising: a data storing means for storing present input data and outputting the stored present input data as previous input data; a look-up table for storing corrected present input data and corrected previous input data, each of which corresponds to the present input data and the previous input data; a controlling means for generating first and second load signals, storing the present input data at the data storing means, reading out the previous input data

2

CU-3292   PATENT

from the data storing means, converting the present input data and the previous

input data into the corrected present input data and the corrected previous input

data with reference to the look-up table, calculating a mean value based on the

corrected present input data and the corrected previous input data, replacing the

calculated mean value with a value approximating to original gray scale data, and

outputting the replaced value as [[free-charge]] pre-charge data; and a liquid

crystal driving means for converting the [[free-charge]] pre-charge data into

analog signals and generating liquid crystal driving signals based on the

converted analog signals in response to the first and second load signals.

     Please replace the paragraph **[0012]** in the Specification with the following

amended paragraph **[0012]**:

[0012] Further, in order to accomplish this object, there is provided a method for

driving a liquid crystal display (LCD) with a look-up table, in which the look-up

table has a plurality of analog voltages corresponding to a plurality of gray scale

data, the method comprising the steps of: storing present input data at a data

storage unit; reading out the present input data stored at the data storage unit as

previous input data; converting the present input data and the previous input data

into corrected present input data and corrected previous input data respectively

with reference to the look-up table; calculating a mean value based on the

corrected present input data and the corrected previous input data; generating

[[free-charge]] pre-charge data by replacing the calculated mean value with a

CU-3292   PATENT

value approximating to original gray scale data and; converting the [[free-charge]]

pre-charge data into analog signals and performing sampling and holding of the

converted results; and amplifying the sampled and held analog signals to

generate liquid crystal driving signals.

Please replace the paragraph **[0013]** in the Specification with the following

amended paragraph **[0013]**:

[0013] It is preferable that the step of generating the [[free-charge]] pre-charge

data comprises the sub-steps of: adding a predetermined weight to the

calculated mean value, and performing rounding off the mean value added by the

weight.

Please replace the paragraph **[0023]** in the Specification with the following

amended paragraph **[0023]**:

[0023] Further, the control unit 300 generates first and second load signals LD

and LD', and converts analog voltages corresponding to the present and previous

input data Dn and Dn-1 into respectively corrected present and previous input

data Dn" and Dn-1" with reference to the look-up table 200. A mean value is

calculated based on the corrected present and previous input data Dn" and Dn-

1". The calculated mean value is replaced with a value approximating to original

gray scale data, and then outputted as [[free-charge]] pre-charge data Dn'.

4

CU-3292   PATENT

Please replace the paragraph **[0024]** in the Specification with the following amended paragraph **[0024]**:

[0024] The liquid crystal driving unit 400, as the source driver IC, converts the [[free-charge]] <u>pre-charge</u> data Dn' into analog signals, and generates liquid crystal driving signals OUT based on the converted analog signals in response to the first and second load signals LD and LD'.

Please replace the paragraph **[0026]** in the Specification with the following amended paragraph **[0026]**:

[0026] According to the present invention, the data replacer 360 adds a weight of 0.5 to the mean value, and then performs data replacement through rounding off. To replace the data in this manner is to get [[free-charge]] <u>pre-charge</u> data to a middle level between the present and previous input data Dn and Dn-1 in order to accomplish a rapid response characteristic of the liquid crystal because the outputs of the source driver IC corresponding to the inputted digital data are non-linear.

5

Please replace the paragraph **[0028]** in the Specification with the following amended paragraph **[0028]**:

[0028] The control unit 300 according to the present invention converts the present input data Dn into the corrected present input data Dn" with reference to the analog voltages of the look-up table 200, and generates corrected previous input data Dn-1" through conversion similar to the forgoing with respect to the previous input data [[Dn]] <u>Dn-1</u>.

Please replace the paragraph **[0030]** in the Specification with the following amended paragraph **[0030]**:

[0030] The digital/analog converter 410 converts [[free-charge]] <u>pre-charge</u> data D' outputted from the control unit 300 into analog signals, and outputs the converted results to the first switch 420. To get the rapid response characteristics of the liquid crystal, the first switch 420 forms a current passage to a terminal A of the sample and holder circuit section 460 by means of switching in response to the first load signal LD. Further, the second switch 440 forms a current passage to a terminal D of the sample and holder circuit section 460 by means of switching in response to the second load signal LD'. When the current passage to the terminal A is formed by switching of the first switch 420, the sample and holder circuit section 460 receives output signals of the digital/analog converter 410 and performs sampling and holding of the received signals. When the

6

CU-3292   PATENT

current passage to the terminal D is formed by switching of the second switch

440, the output amplifier 480 amplifies signals, which are subject to sampling and

holding at the sample and hold circuit section 460, to a predetermined level, and

outputs the amplified signals to an LCD panel (not shown).

Please replace the paragraph **[0032]** in the Specification with the following

amended paragraph **[0032]**:

[0032] As can be seen from FIG. 5, the liquid crystal driving unit 400 according to

the present invention performs sampling and holding of a [[free-charge]] pre-

charge data signal Dn' through switching of the switches 420 and 440 in

response of an downward edge of the first load signal LD and an upward edge of

the second load signal LD', which are generated from the control unit 300, and

thus generating an output voltage, $(V_t+V_b)/2$, corresponding to a middle level

between the maximum voltage V_t and the minimum voltage V_b.

Please replace the paragraph **[0038]** in the Specification with the following

amended paragraph **[0038]**:

[0038] Next, the data replacer 360 of the control unit 300 adds a weight of 0.5 to

the mean value, performs rounding off, and replaces the mean value with a value

approximating to a plurality of gray scale data, thereby generating [[free-charge]]

pre-charge data (S140).

7

Please replace the paragraph **[0039]** in the Specification with the following amended paragraph **[0039]**:

[0039] The digital/analog converter 410 of the liquid crystal driving unit 400 converts the [[free-charge]] <u>pre-charge</u> data generated from the data replacer 360 into analog signals. The sample and hold circuit section 460 performs sampling and holding of the analog signals converted by the digital/analog converter 410 according to switching operation of the first and second switches 420 and 440 (S150).

Please replace the paragraph **[0041]** in the Specification with the following amended paragraph **[0041]**:

[0041] As can be seen from the foregoing, according to the present invention, a middle level of [[free-charge]] <u>pre-charge</u> data are generated from the present and previous input data with reference to the preset look-up table, and the liquid crystal driving unit is [[free-charged]] <u>pre-charged</u>, and thereby the TFT-LCD using normal liquid crystals can be operated at a rapid response time without the influence of over-shoot and under-shoot, and consumption of electric power can be significantly reduced as compared with an existing over-driving mode.